

Amendment to the Specification

The paragraph beginning on page 2, line 19 has been amended as follows:

FIGS. 3A and 3B ~~3-1 and 3-2~~ schematically illustrate flow about a cantilevered body of a cantilevered head assembly.

The paragraph beginning on page 2, line 23 has been amended as follows:

FIG. 5A ~~5-1~~ is a schematic illustration of an embodiment of a blower assembly including flow feedback.

The paragraph beginning on page 2, line 25 has been amended as follows:

FIG. 5B ~~5-2~~ is a schematic illustration of an embodiment of a vacuum assembly including flow feedback.

The paragraph beginning on page 4, line 14 has been amended as follows:

In particular as shown in FIGS. 3A and 3B ~~3-1 and 3-2~~, the cantilevered head assembly 100 includes a leading edge 140 and a trailing edge 142 and the cantilevered body 104 therebetween. For example, in an illustrated embodiment, the cantilevered head assembly 100 includes a rigid actuator arm and head suspension assembly. Flow 144 is separated proximate to the leading edge 140 of the cantilevered body and flows along opposed surfaces 146, 148 of the cantilevered body 104. Friction or drag along the opposed surfaces 146, 148 induces flow separation along a length of the cantilevered body creating an area of higher turbulence proximate to the trailing edge 142 of the cantilevered body. Turbulence or flow disturbances increase vibration or movement of the cantilevered body

or head assembly thus increasing head positioning errors. In an illustrated embodiment in FIG. 3B ~~3-2~~, the blower assembly 126 provides a pressure or flow proximate to the trailing edge 142 of the cantilevered body 104 to delay or limit separation of flow across the profile of the cantilevered body 104 to reduce turbulence and provide a more laminar trailing edge flow region 150 about the cantilevered body 104.

The paragraph beginning on page 5, line 29 has been amended as follows:

In active flow or windage control embodiments illustrated in FIGS. 5A and 5B ~~5-1 and 5-2~~, the assembly includes a sensor or array of sensors 160 to provide feedback to a controller 162 to control parameters for the blower assembly 126 as illustrated in FIG. 5A ~~5-1~~ and/or the vacuum assembly 154 as illustrated in FIG. 5B ~~5-2~~ to optimize windage and flow parameters and reduce head positioning errors. In particular in an illustrated embodiment of FIG. 5A ~~5-1~~, sensor or sensor array 160 includes a hot wire anemometer ~~aemometer~~ or pressure sensor which measures the velocity or pressure in the downstream region 122 to provide feedback to the controller 162 to control blower pressure or force to limit wind induced vibration or off-track motion. Feedback sensor or sensor array 160 is not limited to an anemometer and can include alternate pressure sensors or devices to provide flow, windage or temperature feedback. In an alternate embodiment, flow sensor or sensor array 160 is positioned relative to the upstream flow region to control vacuum assembly 154 of FIG. 5B ~~5-2~~.

The paragraph beginning on page 6, line 12 has been amended as follows:

As previously discussed, servo information or patterns are used to control head position relative to a disc or data storage media (e.g. track following or to control movement of a head from one track to another during a seek operation). Servo information or patterns are encoded at a drive level after assembly of a head suspension or cantilevered head assemblies. Alternately servo information or patterns are encoded or recorded on discs via a dedicated servo writing apparatus 170 as schematically illustrated in FIG. 6 where like numbers are used to refer to like parts in the previous FIGS. As shown, the apparatus 170 includes a cantilevered head assembly 100-6 coupled to a servo block 172 (illustrated schematically). The cantilevered head assembly 100-6 includes a servo head 106-6 to encode servo information or patterns on a disc 102 supported relative to a spindle hub 174 of a spindle block 176. The head 106-6 is energized via a servo writer 178 to encode servo patterns or information on the disc surface.

The paragraph beginning on page 6, line 25 has been amended as follows:

Disc or discs 102 are rotated on the spindle hub 174 by a spindle driver (not shown) of the spindle block 176 and the cantilevered head assembly 100-6 is positioned relative to the disc via an actuator assembly of servo block 172 (including for example, an air bearing actuator pivot or other pivot assembly) in cooperation with operation of servo writer 178 to record servo information to the disc or media. Preferably, servo head 106-6 is positioned relative to the disc using a laser interferometer for measuring the angular displacement and positioning of the servo head 106-6. As shown, the servo writer apparatus 170 includes a

flow control device 124-6 to control windage or flow disturbances proximate to the cantilevered head assembly 100-1 as previously described.

The paragraph beginning on page 7, line 4 has been amended as follows:

A disc or discs 102 are loaded onto the spindle hub 174 and the cantilevered head assembly or assemblies 106-6 ~~400-6~~ and disc or discs 102 are merged to record servo information or patterns on the disc or discs. In the illustrated embodiment, the spindle block 176 and servo block 172 are coupled to a merge assembly 180 (illustrated diagrammatically) to move the spindle block 176 and servo block 172 between a retracted position to load and unload disc(s) and a merged position to record servo information. Following completion of the servo writing process, the spindle block 176 and servo block 172 are unmerged to remove the recorded discs 102 from the spindle block 176.

The paragraph beginning on page 7, line 13 has been amended as follows:

FIG. 7 is a detailed illustration of an embodiment of a cantilevered head assembly 100-7 of a servo writer apparatus including blower assembly 126-7 having nozzle 130-7 supported by a platform 182 and bracket 184. Nozzle 130-7 is coupled to pressure source or blower 132-7 via hose 186 to provide air or gas pressure proximate to the cantilevered head assembly 100-7 or actuator 108-7 rotationally coupled to the servo block 172 as illustrated by arrow 187. In the illustrated embodiment, platform 182 is positioned or spaced to provide near field blowing proximate to the downstream flow region based upon operating and flow parameters. Alternatively, the blower assembly 126-7 can be positioned to provide far field blowing and application is not limited to a particular region or

downstream region. As shown, the nozzle 130-7 has an enlarged outlet width or dimension corresponding to a height of a plurality of cantilevered head assemblies for a multiple disc actuator or actuator block. A head ramp or cam 188 is operable to separate servo heads 106-7 to merge the cantilevered head assemblies 100-7 and discs as previously described for a servo writer apparatus.

The paragraph beginning on page 9, line 10 has been amended as follows:

FIG. 10 is a cross-sectional view of an embodiment of an air dam 200-10 merged with a plurality of discs. As shown, air dam 200-10 includes spaced flow plates 210 extending from an edge portion or body 212 and having a gap 214 between adjacent flow plates. A disc 102 is positioned relative to the gap 214. The disc 102 ~~Disc~~ rotates within the gap 214 and plates 210 are aligned relative to the flow field proximate to the disc surface to provide a high-pressure zone proximate the leading edge 204 of the air dam 200 downstream of the cantilevered head assembly as shown in FIG. 9. Edge portion or body 212 is contoured relative to the disc edge to provide a boundary wall to restrict air or other media flow.

The paragraph beginning on page 9, line 19 has been amended as follows:

Flow to the cantilevered head assembly or assemblies 100 is conditioned by the stripper 202 upstream of the cantilevered head assembly 100. An embodiment of an air stripper 202-11 for multiple discs is illustrated in the cross-sectional view of FIG. 11. As shown, the stripper 202-11 includes spaced stripper plates 216 extending from an edge or body portion 218 and a gap 220 therebetween. Discs 102 rotate within gaps 220 so that the

stripper plates 216 are positioned proximate to the flow field or disc surface upstream of the cantilevered head assembly 100.

The paragraph beginning on page 9, line 26 has been amended as follows:

FIG. 12 illustrates an alternate embodiment of a vertical multiple disc servo writer or apparatus 170-12 including an air dam 200-12, stripper 202-12 and shroud 222 where like numbers are used to refer to like parts in the previous figures. In the illustrated embodiment, actuator 108-12 for the cantilevered head assemblies 100-12 is rotationally coupled to the servo block 172-12 (e.g. via an air bearing pivot or assembly) and air dam 200-12 and stripper 202-12 are shown in the closed position with the discs removed for clarity. The apparatus 170-12 also includes shroud 222 and positioner 224 which moves the shroud 222 between a retracted position (not shown) and an operating position proximate to the disc or discs to load/unload discs and to merge the cantilevered head assemblies for servo writing operation.

The paragraph beginning on page 10, line 6 has been amended as follows:

Positioner 224 ~~222~~ is illustrated schematically and can include hydraulic, pneumatic or mechanical devices that are operable or energizable to move the shroud 222 between the retracted position to load and unload discs and the operating or engaged position shown. In the operating position, shroud 222 is positioned proximate to an edge of the disc to provide a flow boundary along a downstream edge or region of the disc. In an illustrated embodiment, shroud 222 has a dimension 226 which extends between inner and outer discs (not shown) supported on the spindle block 174-12.

The paragraph beginning on page 10, line 23 has been amended as follows:

The shroud ~~Shroud~~ 222 can be coupled to the servo block 172-12 or spindle block 176-12 ~~(not shown)~~. Cam or ramp 188-12 maintains separation of the discs to merge the discs and the cantilevered head assemblies 100-12 for servo writing operation. In particular, cam or ramp 188-12 includes a plurality of fingers spaced relative to the discs to engage the discs to maintain separation for merge operations. The cam or ramp 188-12 is coupled to the servo block 172-12 in the embodiment shown to move between a retracted position spaced from the discs and a merged position via actuator 108-12 ~~(not shown)~~. In the merged position, the fingers or cam are positioned proximate to the discs to merge the discs and the cantilevered head assemblies.

The paragraph beginning on page 11, line 1 has been amended as follows:

In the illustrated embodiment of FIG. 12, the flow control device includes a blower assembly 126-12 positioned proximate to the shroud 222 to mitigate flow disturbances on the actuator assembly or cantilevered head assembly. As shown, the shroud 222 includes a flow passage 224 of the blower assembly 126-12. Although in the illustrated embodiment shroud 222 includes a single passage, the shroud 222 can include multiple passages which can be streamlined to control and direct flow. In an alternate embodiment illustrated in FIG. 13, the flow control device includes a blower assembly 126-13 proximate to the downstream region 122 and a vacuum assembly 154-13 proximate to the upstream region 120 as shown. ~~As shown the~~ The air stripper 202-13 includes a flow passage or passages 228 (illustrated schematically) to provide an opening or passage for the vacuum source proximate to the upstream flow region 120, as previously described. In the illustrated

embodiment, the apparatus includes a blower assembly, a vacuum assembly and shroud although, application is not limited to an apparatus including both a vacuum and blower assembly as shown or particular location or limited to passages in the shroud or air stripper. For example, the cantilevered head assembly 100-13 can include passage to control flow disturbances proximate to the cantilevered head assembly.